ITT Industries Joint Spectrum Center focus

ITT Industries Inc, DBA Advanced Engineering & Sciences in Reston, VA has won a 10-year, indefinite-delivery/ indefinite-quantity contract with the Defense Information Systems Agency, Joint Spectrum Center.

The contract will provide the Joint Spectrum Center with electromagnetic spectrum engineering services, to include engineering and analysis; information management; standards development and application; measurement, testing, and evaluation; modelling and simulation; research and evaluation of emerging technologies; interference resolution; and ordnance risk assessment.

Operation Desert Storm demonstrated the effective use of electronic systems as force multipliers on the modern battlefield. The fighters' reliance on these spectrum-dependent systems will continue to grow as US forward-based military forces are reduced, and new threats to world-wide political stability emerge.

The electromagnetic spectrum will be used to see and sense the battlefield, to communicate warfighting intent, to engage the enemy beyond visual range, and to own the night. It will be used to guide smart weapons, to ensure effective communications, and to counter enemy command and control.

Simultaneously, private sector requirements for the spectrum are rapidly increasing to accommodate products and services for sale in the commercial marketplace.

Congressional action to re-allocate the spectrum and auction portions of it to the private sector have placed increased pressure to manage the spectrum efficiently and plan for its use in both peace and war with increasing detail.

The Joint Spectrum Center's charter, to ensure the DoD's effective and efficient use of the electromagnetic spectrum, comes at a critical period in history. For hand-in-hand with the existence of a fighting force goes the mission of providing its members with adequate, interference-free access to the electromagnetic spectrum.

Today, that is being carried out by JSC engineers and software experts working daily to ensure that the Military Services, non-DoD government, and the commercial sector can share a resource that has become essential to both US military and US economic survival - the "electromagnetic spectrum."

The maximum estimated cost for the base period is $147.9m. FY 2005 R&D funding was provided. The contract has a three-year base period, plus seven one-year option periods.

The requirement was solicited on a full and open basis, and three offers were received. The Joint Spectrum Center and contractor's facilities in Annapolis, MD issued the contract.

ITT Industries in Alexandria, VA has also received a $25m indefinite-delivery/indefinite-quantity contract to provide for R&D for "wideband antennas & sources research."

The basic contract covers high power microwave (HPM) wideband antennas and sources, analysis of new materials, development of impulse radar technology for target detection and identification, and theoretic analysis on advanced HPM concepts.

Work will be performed at ITT Industries, Albuquerque, NM, and be complete by August 2011.

Tiny antennas for THz range MMW arrays

Motorola and Phiar Corp have announced a Joint Development Agreement for a project focusing on the creation of next generation electronic circuits, which can be incorporated with tiny antennas to deliver high-speed millimeter wave receive arrays.

These next generation 'receive arrays' are expected to be low cost with the ability to be integrated into multiple high-speed applications, including device-to-device wireless communications and personal consumer Near Field Communications (NFC) as well as medical imaging, automotive radar, homeland security scanning, and defense applications.

Where today's mass market semiconductor technology enables devices which run in the megahertz (MHz) frequency range and are pushing to enter the low end gigahertz (GHz) frequency range of operation, Motorola and Phiar plan to demonstrate circuits, based on this new low cost technology that are capable of running in the hundreds of GHz and potentially into the THz range.

The JD effort will utilise Phiar's new Metal-Insulator technology and Motorola's millimeter wave circuits and systems technology, modelling and simulation, device and circuit characterisation and advanced prototyping capabilities.

The enabling Metal-Insulator technology can be broadly incorporated with circuits which use standard CMOS manufacturing, as well as other semiconductor and printed circuit technologies. Because the technology is compatible with multiple standards and substrates, it has the potential to greatly improve speed and simplify interconnects, both lowering cost and improving the performance.

The technology has the potential to provide the marketplace with consumer devices which can run at significantly higher data rates (tens of Gbs) as compared to other wireless solutions such as Bluetooth and Ultra-Wideband currently, which operate in the low to hundreds of Mbs.

"We view the Metal-Insulator technology from Phiar, combined with Motorola's technology and expertise, as being an innovative approach to potentially providing the device speeds that will be required in future generations of wireless, radar and imaging solutions provided by Motorola," says Vida Ilderem, VP and director of the Center of Excellence for Embedded Systems and Physical Sciences Research, Motorola Labs.

"Motorolas technological expertise in wireless, radar and imaging is certainly of tremendous benefit to Phiar," said Garret Model, Phiar Corp chairman, CTO and co-founder.

"We look forward to working with Motorola on the technology development, as well as the follow-on industry adoption and standardisation work that is required."